

**TELMATOPHILUS TYPHAE (FALLÉN) (COLEOPTERA: CRYPTOPHAGIDAE),
A PALEARCTIC CATTAIL SPECIALIST ESTABLISHED IN THE CANADIAN
MARITIME PROVINCES**

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Abstract.—A common Palearctic cryptophagid beetle, *Telmatophilus typhae* (Fallén), is reported for the first time from North America. Adults were collected in Canada in July 1995 and 1997 at numerous localities in New Brunswick, Nova Scotia, and Prince Edward Island. This immigrant species, a specialist on the staminate flower clusters of the cattails *Typha latifolia* and *T. angustifolia*, is redescribed and diagnosed, and illustrations of chief morphological characters of the pronotum and male genitalia that facilitate its identification are provided. Distributional data from the Canadian Maritime Provinces are listed and mapped, and its Old World distribution, habits, and natural history are summarized.

Key Words: Coleoptera, Cryptophagidae, *Telmatophilus typhae*, *Typha latifolia*, *Typha angustifolia*, North America, distribution, habits, natural history

Cattails (*Typha* spp.) (Typhaceae), also known as bulrushes or reedmaces, are probably the most familiar of all wetland plants in North America. Their distinctive brown flower spikes are commonly seen at the edges of ponds, rivers, lakes, or anywhere there is shallow, standing water part of the year, or even in damp soil (Thieret and Luken 1996). Common cattail (*Typha latifolia* L.) and narrow-leaved cattail (*T. angustifolia* L.) are the most abundant species in eastern North America. *Typha latifolia* is native to North America, whereas *T. angustifolia* might be an adventive European species (Grace and Harrison 1986).

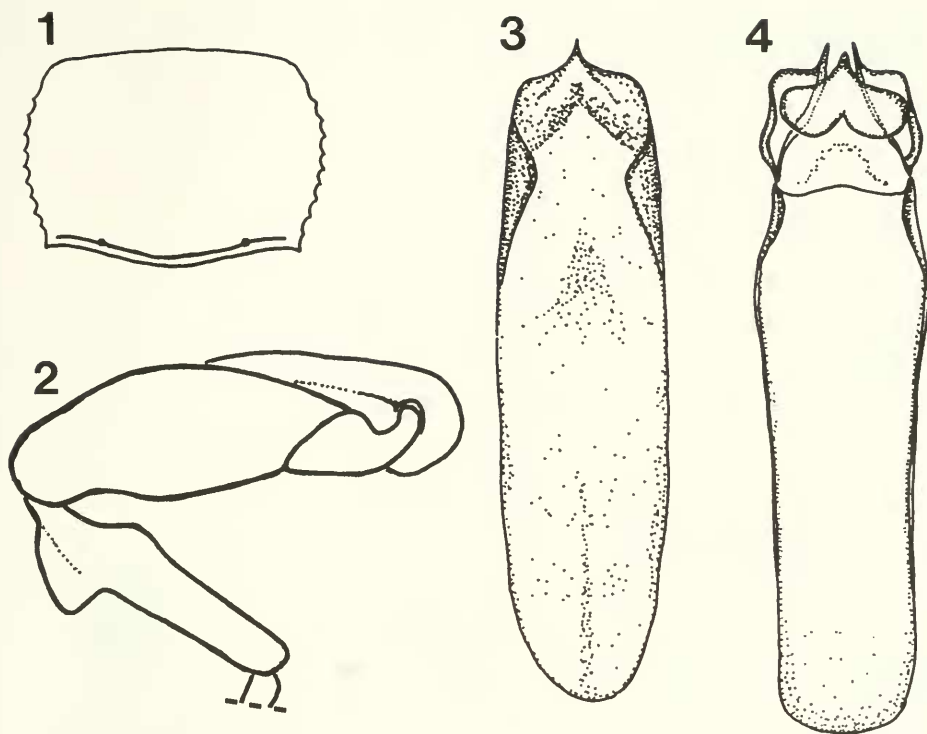
On collecting trips in 1995 and 1997, we collected numerous specimens of *Telmatophilus typhae* (Fallén) in the Canadian Maritime Provinces; this widely distributed Palearctic beetle was found in the staminate (male) inflorescences of common and nar-

row-leaved cattails. We provide data on North American localities of this newly discovered species, plus a brief redescription, a diagnosis, and information on its Old World distribution, habitat, and natural history.

Telmatophilus typhae (Fallén)
(Figs. 1, 3, 5)

Cryptophagus typhae Fallén 1802:16.
Telmatophilus typhae: Heer 1841:417; Fowler 1889:310; Horion 1960:219; Lohse 1967:113; Burakowski et al. 1986:148; Koch 1989:181; Sparacio 1995:127; Runge 1998:47.

Redescription.—Oblong, slightly convex, black or fuscous black, clothed with dense, yellowish to ashy gray pubescence. Eyes prominent. Thorax transverse, margins rounded to posterior angles, distinctly crenulate (Fig. 1) and somewhat explanate. Elytra long, subparallel, closely punctate



Figs. 1–4. *Telmatophilus* spp. 1, 3, *T. typhae*. 1, Pronotum, dorsal aspect. 3, Aedeagus. 2, 4, *T. americanus*. 2, Hind leg. 4, Aedeagus. Figs. 1 and 3 redrawn from Runge (1998: fig. 5, p. 50 and fig. 7a, p. 51).

basally, more finely so toward apex. Antenna and legs reddish-testaceous; femora slightly darker. Length 1.9–2.6 mm.

Diagnosis.—*Telmatophilus typhae* is quite similar in external morphology to the endemic *T. americanus* LeConte, the only species of the genus previously recorded from North America.

It differs from *T. americanus* chiefly by its smaller body size (1.9–2.6 mm vs. 2.5–3.0 mm). While the male hind tibia of *T. typhae* is unmodified, that of *T. americanus* has a flange-like expansion externally at the base (Fig. 2). The male of *T. typhae* has a very feeble depression at the apex of the last visible (fifth) ventral abdominal segment, whereas in *T. americanus* there is a deep oval pit at the apex of the last ventral segment. The male aedeagus is illustrated for both species in Figs. 3–4.

Distribution.—In the Palearctic Region, *T. typhae* is widespread in much of Europe.

In the north, it ranges across Russia, southern Finland, Norway, Sweden, Denmark, Great Britain, Scotland, and Ireland; occurs commonly throughout central and western Europe; and in the south occurs in Spain, Italy, and the Balkan peninsula (Horion 1960).

In North America, *T. typhae* has been collected from male flowers of *Typha latifolia* and *T. angustifolia* at numerous localities in New Brunswick, Nova Scotia, and Prince Edward Island (see Fig. 5):

Material examined.—(voucher specimens deposited in the Cornell University Insect Collection [CUIC], Ithaca, NY). CANADA: NEW BRUNSWICK: *Charlotte Co.*, Pocologan, 21-VII-1997; Saint Stephen, 21-VII-1997. *Kent Co.*, 4 km S. Bouctouche, 24-VII-1997; Richiboucto, 24-VII-1997. *St. John Co.*, St. John (Lake-wood), 20-VII-1997. *Westmorland Co.*, Moncton, University de Moncton, 23-VII-

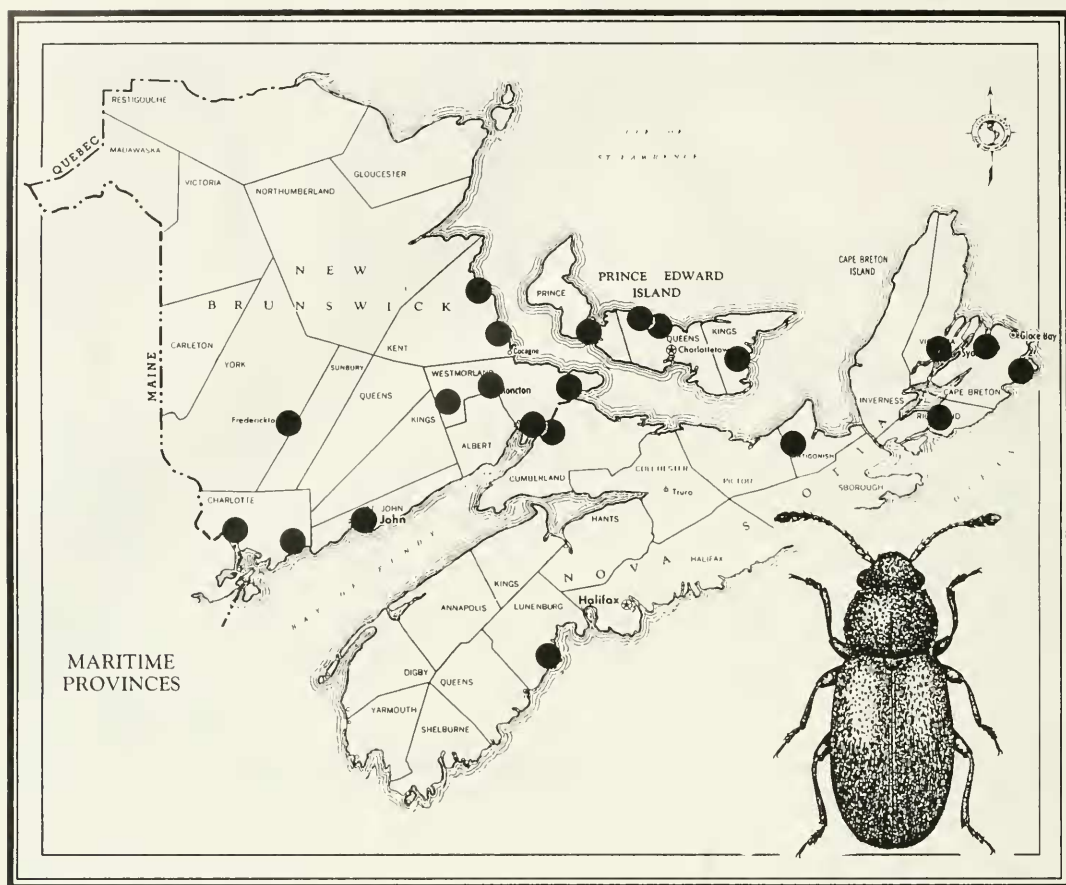


Fig. 5. Known distribution of *Telmatophilus typhae* in the Canadian Maritime Provinces. Habitus illustration of *T. typhae* reproduced from Sparacio (1995: fig. 149, p. 128).

1997; Petitcodiac, 23-VII-1997; Port Elgin, 25-VII-1997; Sackville, 25-VII-1997. *York Co.*, Fredericton, 22-VII-1997. NOVA SCOTIA: *Antigonish Co.*, Rt. 104E @ Beaver Meadow Rd., 22-VII-1995. *Cape Breton Co.*, Louisbourg, 24-VII-1995; Sydney, 23-VII-1995. *Cumberland Co.*, Amherst, 25-VII-1997. *Lunenburg Co.*, Rt. 3, Mader's Cove [SE of Mahone Bay, NW of Lunenburg], 21-VII-1995. *Richmond Co.*, Chapel Island, 23-VII-1995. *Victoria Co.*, Baddeck, 25-VII-1995. PRINCE EDWARD ISLAND: *Kings Co.*, Montague, 25-VII-1995. *Prince Co.*, Summerside, 26-VII-1995, 25-VII-1997. *Queens Co.*, Cavendish, 26-VII-1995, 1997; S. Cymbria, 26-VII-1995.

Habitat and natural history.—In the Palearctic Region, species of *Telmatophilus* congregate on the inflorescences of *Typha* (Typhaceae), *Sparganium* (Sparganiaceae), and *Carex* (Cyperaceae) (Bratton 1997). *Telmatophilus typhae* has also been reported in the flowers of marsh marigold, *Caltha palustris* (Ranunculaceae) (Fowler 1889: 310; Dibb 1948:63).

In North America, the genus is represented by a single native species, *T. americanus*, which occurs on flowers and leaves of the semi-aquatic plant, arrow arum, *Peltandra virginica* L. (Araceae) (Blatchley 1910). In the Canadian Maritime Provinces, adults and larvae of *T. typhae* were abundant in the pollen-laden inflorescences of

both *Typha latifolia* and *T. angustifolia* in late July 1995 and 1997. The tapping of male flower spikes over a beating sheet sometimes yielded hundreds of adults and larvae.

The seasonal history and habits of *T. typhae*, although not described anywhere in detail, are likely similar to those of *T. schoenherri* (Gyllenhal), a common and locally abundant European species, whose biology in eastern Austria was characterized by Waitzbauer (1976) and is summarized below.

In late May, overwintered females lay eggs in small clusters of approximately 15 on the outer surface of immature male inflorescences. Oviposition generally occurs from late afternoon until dusk. A single mated female can lay 35–40 eggs on an individual male inflorescence. Eggs hatch in about 3–4 days and emerging larvae begin to burrow into the flower to feed. There are three larval instars, with larval development requiring approximately 16–19 days. The first two larval stages feed on the immature, succulent stamens and pollen. The last-instar larva (and adults) feeds on mature pollen grains. Larval feeding by *T. schoenherri* on pollen and male reproductive structures has little or no effect on overall plant reproduction and propagation. Larvae of all three instars, pupae, and adults are found in mature male flower clusters. According to Waitzbauer (1976), the senescing and decaying of the male flowers (end of June) contributes more significantly to larval mortality than does parasitism or predation. When male flower clusters break up from the central column of the plant, they fall, along with beetle larvae and pupae, into standing water; these immature stages probably die. Pupation occurs by the end of July, requiring about five days, and new adults begin to emerge by mid-August. Adults overwinter between leaf sheaths, or possibly in mature seed heads, of *Typha*.

Remarks.—Since 1986, two widespread Palearctic seed bugs (Lygaeoidea: Artheidae), which feed on the pistillate (or fe-

male) flower spikes of cattails, have been detected in North America. Wheeler and Fetter (1987) reported the discovery of the seed bug *Chilacis typhae* (Perrin) on *Typha latifolia* in Pennsylvania, New York, Delaware, and Maryland. Hoffman and Slater (1995) recorded another abundant and easily collected seed bug, *Holcocranum saturejae* (Kolenati), on species of *Typha* in Florida, New Jersey, North Carolina, South Carolina, and Virginia. Wheeler and Stoops (1999) gave the first western North American records of these two Palearctic cattail bugs: *C. typhae* from Oregon and Washington, and *H. saturejae* from California to Texas.

Both cattail seed bugs are considered adventive in North America (Wheeler and Fetter 1987, Hoffman and Slater 1995, Hoffman 1996, Wheeler and Stoops 1999). Claassen (1922) provided a comprehensive baseline study of cattail insects when he inventoried this fauna in New York, recording 25 species in five orders. Had *C. typhae*, the northernmost of the two immigrant lygaeoids, been present when Claassen conducted his study, it likely would have been collected.

We provisionally consider *T. typhae* to be adventive in North America, although it might be an overlooked Holarctic species. Additional surveys for this species are needed in other northern habitats across North America. To date, we have not examined male cattail inflorescences in northern Maine, but we strongly suspect that *T. typhae* occurs there and perhaps elsewhere in suitable habitats in northern New England. We did collect *T. typhae* at Saint Stephen, New Brunswick, which is less than 4 km from the United States and Maine.

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